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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/857,382	09/23/2004	Hidefumi Fujimoto	KNI-152-A	4726

21828 7590 01/11/2007
CARRIER BLACKMAN AND ASSOCIATES
24101 NOVI ROAD
SUITE 100
NOVI, MI 48375

EXAMINER

PIZIALI, ANDREW T

ART UNIT	PAPER NUMBER
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1771

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	01/11/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

09/857,382

Applicant(s)

FUJIMOTO ET AL.

Examiner

Andrew T. Piziali

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 September 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 8 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 8 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 01 June 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Response to Decision Rendered

1. In view of the Affirmed-In-Part decision by the Board of Patent Appeals and Interferences filed on 3/31/2006, the finality of the Office Action mailed on 11/26/2002 is withdrawn and prosecution is hereby reopened.


GREGORY MILLS
QUALITY ASSURANCE SPECIALIST

Response to Amendment

2. The amendment filed on 9/25/2006 has been entered.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over USPN 6,379,776 to Tada et al. (hereinafter referred to as Tada) in view of USPN 5,854,708 to Komatsu et al. (hereinafter referred to as Komatsu) in view of USPN 6,103,363 to Boire et al. (hereinafter referred to as Boire).

As agreed by the Board of Patent Appeals and Interferences on 3/31/2006:

- 1) Tada discloses a hydrophilic member comprising a photocatalyst layer formed on a surface of a substrate and a silicon oxide overcoat layer, having a surface polarity opposite to that of tin oxide, formed on the surface of the photocatalyst layer (column 2, lines 16-32 and column 10, lines 3-17).
- 2) Tada discloses that the mean surface roughness of the top surface is within a range of 1.5 to 80 nm (column 13, lines 11-31).
- 3) Tada discloses that the photocatalyst layer may comprise titanium oxide (column 2, lines 48-54), but does not mention the use of tin oxide. Considering that Komatsu discloses that a photocatalyst layer may comprise titanium oxide or tin oxide (column 2, lines 40-44), it would have been obvious to one having ordinary skill in the art at the time the invention was made to use tin oxide as the photocatalyst layer of Tada, because it is functionally equivalent to titanium oxide, because both materials function as photocatalysts.
- 4) The article disclosed by Tada is a hydrophilic member because Tada discloses that since the silicon oxide layer is nonpolar, or has low polarity, the hydrophilicity sustainability is improved (paragraph bridging columns 10 and 11).
- 5) Tada (column 4, lines 50-54) and Komatsu (column 5, lines 16-40) each disclose that the photocatalytic layer may be deposited by CVD, therefore, the tin oxide layers taught by the applied prior inherently have a rutile structure.

Tada discloses that the undercoat film may be a layer of silicon oxide (see the paragraph bridging columns 2 and 3 and column 3, lines 14-17), but Tada does not appear to mention the use of a layered body of tin oxide and silicon oxide. Boire discloses that it is known in the substrate with hydrophilic (column 3, lines 56-59) and photocatalytic (column 1, lines 6-11) coating art to include a number of layers with different or complementary functions, such as an optical function and an alkali barrier function, between the substrate and the photocatalytic layer (column 5, lines 21-30). Boire discloses that a layer of tin oxide may be used to impart an optical function, such as a decrease in light reflection and/or render the color in reflection more neutral (column 5, lines 59-66), while a silicon oxide layer may be used to impart the coating with an alkali barrier function (column 6, lines 11-19). It would have been obvious to one having ordinary skill in the art at the time the invention was made to include a layered body of tin oxide and silicon oxide between the surface of the substrate and the photocatalytic layer, as taught by Boire, because the tin oxide layer would impart an optical function, such as a decrease in light reflection and/or render the color in reflection more neutral, while the silicon oxide layer would impart the coating with an alkali barrier function.

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5. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over USPN 6,103,363 to Boire in view of USPN 6,379,776 to Tada in view of USPN 5,854,708 to Komatsu.

Boire discloses a hydrophilic member (column 3, lines 56-59) comprising a tin oxide layer (layer comprising tin oxide) having a rutile structure (column 2, lines 5-51) formed on a surface of a substrate, the mean surface roughness of the top surface within a range of 2 to 20 nm (column 4, lines 56-58), and a undercoat layered body of tin oxide and silicon oxide disposed between the surface of the substrate and the tin oxide layer (column 5, line 21 through column 6, line 19).

Specifically regarding the tin oxide layer having a rutile structure, Boire discloses that the photocatalytic layer may comprise titanium oxide in rutile form (column 2, lines 5-15) and comprise tin oxide (column 2, lines 41-51). Therefore, Boire discloses a tin oxide (comprising) layer having (comprising) a rutile structure. In the event that it is shown that Boire does not teach the claimed tin oxide layer having a rutile structure, Komatsu is relied upon to disclose that a photocatalyst layer may comprise titanium oxide or tin oxide (column 2, lines 40-44).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to use tin oxide as the photocatalyst layer of Boire, because it is functionally equivalent to titanium oxide, because both materials function as photocatalysts. Boire (column 2, lines 30-37) and Komatsu (column 5, lines 16-40) each disclose that the photocatalytic layer may be deposited by CVD, therefore, the tin oxide layers taught by the applied prior inherently have a rutile structure.

Specifically regarding the undercoat layered body of tin oxide and silicon oxide, Boire discloses that a number of layers with different or complementary functions, such as an optical

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function and an alkali barrier function, may be located between the substrate and the photocatalytic layer (column 5, lines 21-30). Boire discloses that a layer of tin oxide may be used to impart an optical function, such as a decrease in light reflection and/or render the color in reflection more neutral (column 5, lines 59-66), while a silicon oxide layer may be used to impart the coating with an alkali barrier function (column 6, lines 11-19).

Boire does not appear to mention an overcoat layer formed on the surface of the photocatalytic layer, but Tada discloses that it is known in the photocatalytic coating art to include a silicon oxide overcoat layer on the surface of the photocatalytic layer, to suppress adsorption of organic substances while maintaining high photocatalytic activity (column 10, lines 3-17). It would have been obvious to one having ordinary skill in the art at the time the invention was made to place a silicon oxide overcoat layer on the surface of the photocatalytic layer, as taught by Tada, to suppress adsorption of organic substances while maintaining high photocatalytic activity.

Conclusion


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andrew T. Piziali whose telephone number is (571) 272-1541. The examiner can normally be reached on Monday-Friday (8:00-4:30).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Terrel Morris can be reached on (571) 272-1478. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

atp


ANDREW PIZIALI
PRIMARY EXAMINER